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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,814	02/08/2002	Trefor Southwell	858063.456	3645

500	7590	06/30/2004

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EXAMINER
MCLEAN MAYO, KIMBERLY N

ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *13 May 2002*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-17* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,3-5,7-10 and 13-17* is/are rejected.

7) ☒ Claim(s) *2,6,11 and 12* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *13 May 2002* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

1. The enclosed detailed action is in response to the Application submitted on May 13, 2002.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 states randomizing each of the selected memory maps; it is not clear what this limitation means.

4. Claim 14 recites the limitation "the criteria" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1, 3-5, 7-10 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Blandy et al. (USPN: 5,940,618).

Regarding claim 1, 3, 5, 7-8 and 13, Blandy discloses evaluating a first version of the program according to a first memory map to generate a program counter trace [trace] (C 5, L 19-21); converting the program counter trace into a format defining a memory location in association with a function and an offset using the first memory map (C 5, L 21-28); translating the program counter trace into physical addresses using one of the set of memory maps to be evaluated, different from the first memory map and evaluating the number of likely cache misses using a model of a direct mapped cache [C 5, L 52-54] for that one memory map (C 5, L 29-67; C , L 1); and repeating the above steps for each of the memory maps in the set (C 6, L 1-9). Regarding claim 7, the first component is the tracer (C 5, L 14-28) and the second component is the simulator (C 5, L 29-67)

Regarding claim 4, Blandy discloses subsequent to evaluating the first set of memory maps [a subset of the possible memory placement arrangements], generating a further set of memory maps for evaluation [C 6, L 1-10; the remaining memory placement arrangements].

Regarding claim 9, Blandy discloses generating a plurality of alternate memory maps for evaluation (C 5, L 57-60; C 6, L 1-5 – the memory maps are generated when the system determines the different possible memory placements for the instruction and data segments); evaluating each of the plurality of alternate memory maps for the potential number of missed instructions resulting from cache memory conflicts and selecting at least one of the evaluated plurality of alternate memory maps having the fewest potential number of missed instructions (C 5, L 60-67; C 6, L 1-34).

Regarding claims 10 and 14, Blandy discloses selecting a plurality of memory maps for evaluation and a criteria for terminating the evaluation [criteria for terminating – when the cache conflicts are minimized as much as possible and otherwise as stated in C 6, L 10-16](C 5, L 57-60; C 6, L 1-5 – a subset of the memory maps selected [generated] when the system determines the different possible memory placements for the instruction and data segments); randomizing each of the selected memory maps (the memory maps are not disclosed as being evaluated or generated in a particular order and thus are randomized); evaluating the performance of each of the selected memory maps and creating a new set of memory maps from the memory maps previously evaluated for a next evaluation (C 5, L 57-60; C 6, L 1-5 – a the remaining subset of the memory maps selected [generated] when the system determines the different possible memory placements for the instruction and data segments; the maps are created from the previous evaluated maps in that the new maps are created so as to be different from the previous maps).

Allowable Subject Matter

7.   Claim 2, 6 and 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8.   Claims 15-17 would be allowable if rewritten to overcome the rejection(s) under 35

U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations

of the base claim and any intervening claims.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Prasanna – USPN: 6,272,599 – remapping regions of memory to reduce thrashing.

Hall – US 2003/0097538 - remapping regions of memory to reduce thrashing.

Calder – USPN: 5,963,972 - remapping regions of memory to reduce cache conflicts.

Itsuka – USPN: 5,862,385 - remapping regions of memory to reduce cache conflicts

Orbits – USPN: 5,630,097 - remapping regions of memory to reduce cache conflicts.
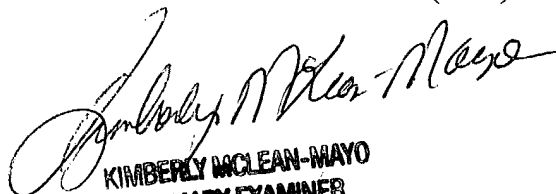

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 703-308-

9592. The examiner can normally be reached on M (10:00 - 6:30); Tues, Thr (10:00 - 4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Donald Sparks can be reached on 703-308-1756. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KIMBERLY MCLEAN-MAYO
PRIMARY EXAMINER

Kimberly N. McLean-Mayo
Examiner
Art Unit 2187

KNM

June 25, 2004